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NOTES ON THE MYXOMYCETES OF THE CURTIS HERBARIUM

WILLIAM C. STURGIS

The Curtis Herbarium possesses a unique interest for American taxonomists by reason of the fact that very many of the specimens are almost certainly co-types of species published by Berkeley. The only element of uncertainty in this respect is the rather remote possibility that more than one species may have been present in the same original gathering; but in the case of the *Myxomycetes* this is so remote as to be practically negligible, and we may feel certain that in examining the specimens of this group in the Curtis Herbarium we are dealing in many cases with material used by Berkeley in describing his species. Some of the specimens appear to be now in better condition than the corresponding material in the Berkeley herbarium at Kew. In the Curtis collection the specimens show only too plain evidence of having been brushed over, at some time, with an alcoholic solution of corrosive sublimate, and Miss Lister informs me that the same is true of the Berkeley specimens. Notwithstanding this treatment, however, most of the specimens are still fairly recognizable, and although Miss Lister's observations on the material at Kew and in the British Museum are of the utmost possible accuracy, a carefully annotated examination of the corresponding material in America may not come amiss to future students. This is the more desirable in that every examination entails a certain degree of loss of material, and though this loss may be partly compensated for by the preparation of permanent microscopic mounts, most observers, lacking any careful notes on the minute details of a specimen, prefer to secure such details for themselves from the actual specimen rather than to depend altogether upon a microscopic mount. Hence the depletion gradually proceeds to the vanishing point—a deplorable result where valuable type-material is concerned.

Through the courtesy of Dr. W. G. Farlow, I have been permitted during the past eighteen months to spend as much time as seemed necessary upon a most careful study of every specimen of the *Myxomycetes* in the Curtis herbarium. The following notes are the result. As will be seen, most of the specimens referred to are of species published under the authority of Berkeley, Curtis, or Ravenel either separately or in collaboration. Of the 125 species contained in the collection, 39 come under this head. There are, however, a dozen or more Schweinitzian species represented by specimens from the Schweinitz herbarium, and therefore of special interest. In recording these notes, I have followed the order in which the specimens occur in the Curtis herbarium as at present arranged. The labels and such notes thereon as are of value, I have copied precisely as they stand, except that in certain cases where Curtis has transcribed the name incorrectly, I have used the correct form.

"DIDYMIUM CHRYSOPEPLUM B. & C. (1202) ad fol: dej: madida. June. Society Hill, S. C."

Through a clerical error Curtis writes "*chrysoseplon.*" The specimen is in wretched condition, but the white, calcareous stalk, small conical columella, and the "peridio globoso, exteriore furfuracea fulvo" of the original description, are characters applicable only to *Physarum melleum* (B. & Br.) Mass. The spores in the Curtis specimen are pale brown, almost smooth, 7.3–8.4 μ diam.

"226. DIDYMIUM COLUMBINUM B. & C. Venezuela coll. Fendler."

This name was never published by Berkeley; but Rostafinski (Monog., App., p. 13) refers to this Venezuelan specimen and calls it *Tilmadoche columbina* (Berk.). Miss Lister states (*in litt.* 6/21, '15) that she has no doubt that this specimen is *Physarum compactum* (Wing.), basing her judgment on the very slender capillitium and the absence of a columella. Of the Curtis specimen little remains except a number of white stalks with chalky fracture, and the remnants of a delicate, persistent capillitium with small rounded lime-knots; the violet-brown spores are minutely and irregularly spinulose and measure 8.5–10.5 μ diam. Under the circumstances, the absence of a central ball of lime in the remnants of the capillitium is easily explained, and the reference of the specimen to *P. compactum* seems fully justified. Such being the case, however, it is evident that the name *Physarum columbinum* (Rost.) takes precedence of *Physarum compactum* (Wing.).

"DIDYMIUM CURTISII Berk. (1179) ad gram: & herb: viv: in Savannis. July, 1847. Society Hill, S. C."

As stated by Lister, this is typical *Badhamia rubiginosa* (Chev.) Rost. The dark, rather strongly spinulose spores measure 10–11.5 μ diam.

"DIDYMIUM DEALBATUM B. & C. Venezuela, coll. Fendler."

This specimen is undoubtedly a portion of the type of *Chondrioderma subdictyospermum* Rost. It corresponds precisely with Rostafinski's description. The earlier name was never published.

"(3510) DIDYMIUM LUTEOGRISEUM B. & C. Penna., 1851. Dr. Michener (484)."

This specimen, together with another similarly labelled in Michener's handwriting and bearing the same number (484) are apparently co-types, although the original note on the species (Grevillea, **2**: 65, 1873) does not give the number of the specimen referred to, nor does Rostafinski in referring to the same species later. The specimen labelled by Michener himself is in fine condition and is typical *Physarum polycephalum* Schw. It is interesting to note, however, that most of the sporangia in this specimen are single and therefore are of the so-called variety *"obrusseum."*

"DIDYMIUM MEGALOSPORUM B. & C. (1205) ad folia dejecta. June. Society Hill, S. C."

The specific name appears on the label as *"megalospermum,"* but Berkeley wrote *"megalosporum."* The specimen is typical *Didymium eximium* Pk. Lister relegated this species to varietal rank under *D. nigripes* (Lk.) Fr., and applied to the variety the designation *"eximium."* This being the first name to be applied to the form after its transfer to varietal rank, it remains valid in accordance with Article 49 of the Vienna Rules of Nomenclature. If, however, *Didymium eximium* Pk. is regarded as a distinct species, as it is by Macbride, evidently the name "*megalosporum* B. & C." takes precedence of "*eximium* Pk."

"5701 DIDYMIUM NECTRIAEFORME Berk. & Curt. fol. mort. Querc. coll. D. Murray. Mass. Sprague (828)."

This is a fairly abundant specimen of *Physarum virescens* Ditm., in good condition.

"DIDYMIUM OBRUSSEUM B. & C. ad folia. Cuba. C. Wright (799) B. & C. Fung: Cub; 532."

Two specimens are referred to under the original description (Journ. Linn. Soc., **10**: 348, 1868) i.e. Nos. 664 and 799 of Wright's Cuban Fungi, of which the first mentioned is the type. Both of these numbers are found in the Curtis herbarium, as well as the specimen collected by Lindheimer on leaves of *Gonolobus* in Texas and referred to under the second description of the species (Grevillea **2**: 53, 1873). Fortunately the co-type, No. 664, is in fairly good condition and is easily referable to *Physarum polycephalum* Schw., var. *obrusseum* (B. & C.) List. Through a clerical error on Curtis' part, the specific name on the Texas specimen appears as "*obfuscum.*"

"(2987) DIDYMIUM, straw, leaves, sticks, etc., Sept. 1850. Santee Canal, S. C. Ravenel (1100)."

To this label Curtis has added the note, "D. xanthopo prox: sed floccis albis." The specimen is a co-type of *Didymium proximum* B. & C., which Berkeley differentiates from *D. xanthopus* on the ground of a difference in the color of the capillitium. It is, however, unquestionably the latter form.

"DIDYMIUM PRUINOSUM B. & C. 530. on sticks. Jan., 1857. Cuba, coll. Wright (269)."

Nothing remains of this specimen except one or two slender black stalks. The capillitium has disappeared. The few spores remaining are bright purple brown, minutely spinulose, and measure 10–11.5 μ diam. Lister refers it, doubtless correctly, to *Physarum compressum* A. & S.

"DIDYMIUM PUSILLUM B. & C. (1345) ad Herb. corrumpent. Septr. Society Hill, S. C."

The specimen shows a few crushed sporangia with delicate, reddish stalks 0.75 mm. in height; membranous wall, venulose below; and pale brownish spores, almost smooth, and measuring 10–11.8 μ diam. Miss Lister (Monog., Ed. 2, p. 65) notes the confusion caused by the existence of two species under the one number in Berkeley's herbarium. The single specimen in the Curtis herbarium shows only *Physarum pusillum.*

"DIDYMIUM RADIATUM B. & C. ad fol. gram. Cuba. C. Wright (733). B. & C. Fung: Cub: 529."

A quantity of the circular, whitish bases of stalks and two or three stalks filled with crystalline nodules of white lime are all that is left of this specimen. Miss Lister refers it to *Didymium squamulosum* (A. & S.) Fr.

"DIDYMIUM RAVENELII B. & C. Aest. 1852. Sulphur Springs, N. C. Ravenel (1513)."

The few perfect sporangia show stout, brown or black stalks; a capillitium of delicate threads with pale, reddish, fusiform lime-knots; and pale violet-brown spores, very minutely spinulose and measuring 8.5–9.5 μ. diam. It is evidently a faded specimen of *Physarum pulcherripes* Pk. I have elsewhere discussed the relationships and the synonomy of this species,[1] but the conclusion therein stated that the specific name *Ravenelii* might be retained was a mistaken one, since the name given by Peck antedates the other by three months. That name was written *"pulcherripes,"* and the original orthography should be retained. In connection with this species it is interesting to note the range of color exhibited in species of the *"P. globuliferum"* group, including the red of *"pulcherripes,"* the brown of *"murinum,"* the purple of *"pulcherrimum."* I have recently seen specimens collected by Mr. Hugo Bilgram, of Philadelphia, which are of a pinkish lilac color, and Professor Macbride has collected a pale blue form. In all of these the distinctions are based practically on color alone.

"DIDYMIUM TENERRIMUM B. & C. 533. "grayish." fol. Tillandsia etc. June 1857. Cuba. Coll. Wright (267)."

This is a co-type of *Physarum polycephalum* Schw. var. *obrusseum* (B. & C.) List.

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[1] Transac. Conn. Acad. A. & S. Vol. X, Pt. 2, p. 468–470, 1900.

"6364 DIDYMIUM TERRIGENUM B. & C. ad terram argillaceam nudam. Julio. 1857. Hillsborough, N. C."

This very scanty and weathered specimen consists of a membranous hypothallus on which, originally, were seated closely crowded sporangia, now reduced to the remains of a capillitium consisting of rounded or angular, pale yellow lime-knots, connected by abundant slender threads. The spores are violet- or umber-brown, almost smooth, and measure 7.5–8 μ diam. Lister appears to me to have been correct in referring this to *Physarum virescens* Ditm. (Monog., Ed. 1, p. 60) rather than to *P. lateritium* as is done in Ed. 2 of the same work.

"ENTERIDIUM CINEREUM Schw. insuper putridas herbas effusum. Bethl. Herb. Schw. = ejus Lachnobolus."

"LACHNOBOLUS CINEREUS Schw. insuper stipites dejectos. Bethl. Herb. Schw. = ejus Enteridium."

Both of these specimens are typical *Fuligo cinerea* (Schw.) Morg.

"SPUMARIA LICHENIFORMIS Schw. cort. trunc. dejec. Robiniae. Bethl. Herb. Schw."

This is typical *Physarum didermoides* (Ach.) Rost.

"PHYSARUM CAESPITOSUM Schw. Herb. Schw."

Many years ago I wrote in reference to this species: "So far as I know, there is no authentic specimen in existence."[2] This specimen in the Curtis herbarium, however, must be considered as at least authentic. Unfortunately, practically nothing remains of it except traces of a thin, membranous, pale straw-colored hypothallus, and, mingled with these, numbers of spores of a pale umber color, very minutely and irregularly punctate and measuring 8–9.5 μ diam. These spores seem to me a sufficiently distinguishing feature so far as the connection of this species with *Physarum citrinellum* Pk., is concerned. They are certainly not the spores of the latter species. I can therefore only repeat, though with more assurance, my previous statement (*l. c.*) that *Physarum caespitosum* Schw. is identical with *P. virescens* Ditm. There is nothing in Schweinitz's original description which militates against this view, and the character of the spores in the specimen under consideration supports it.

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[2] Transac. Conn. Acad. A. & S. Vol. X, Pt. 2, p. 472, 1900.

"(5191) PHYSARUM CHRYSOTRICHUM B. & C. lign. putr. Aut. 1854 Ala. Peters (704)."

The label reads "chrysostictum," evidently a clerical error. In the original description of the species (Grevillea, 2: 66. 1873) the specimen number is given as 5091, but in Curtis' original MS. list it is 5191. Lister's reference of this species to *Badhamia decipiens* (Curt.) Berk. seems based on fairly sufficient evidence. The Curtis specimen shows nothing but the basal portions of a number of sessile, golden-yellow sporangia and a few violet-brown, minutely spinulose spores, 11 μ in diameter, or slightly smaller.

"PHYSARUM CUPRIPES B. & R. Ravenel (1645) & Peters (1157)."

Again by an error, the label reads "*cupriceps*." Both specimens are in wretched condition. The single sporangium found shows a very delicate capillitium with scanty and small, yellowish lime-knots, and violet-brown spores, almost smooth, and measuring 8 μ diam. A very fine specimen is to be found in Ravenel's Fung. Car. Exsicc., Fasc. III, No. 76, under the name *P. cupriceps* Berk. & Rav. Both Lister and Macbride correctly refer this species to *Physarum flavicomum* Berk.

"(6072) PHYSARUM PETERSII B. & C. Ala. superiore, Peters (982)."

This specimen, referable to *P. pulcherripes* Pk., is in comparatively good condition, though the sporangia are crushed down upon the soft substratum. Careful treatment exhibits a columella not peg-like, such as is usually seen in the "*globuliferum*" group, but varying from broadly conical to subglobose and giving rise to the columella from all parts of its surface, very much as in *Didymium nigripes* (Lk.) Fr. var. *eximium* (Pk.) List. The specimen of *P. pulcherripes* distributed in Ellis & Everhart, N. A. F., No. 3300, shows the same form of columella, and even in the case of typical *P. globuliferum* (Ell. & Ev., N. A. F., No. 1120) the columellae are large and columnar, measuring 0.8–1.5 mm. in height and 0.3–0.5 mm. in thickness. In both specimens of *P. pulcherripes* above referred to, the stalks are slender and bulging with globular, red masses of plasmodic material, 18 μ in diameter, largely replacing the usual lime.

"PHYSARUM VERMICULARE Schw. Salem. Herb. Schw."

This is a fairly good specimen of typical *Perichaena vermicularis* (Schw.) Rost.

"(1972) DIDERMA PALLIDUM B. & C. Pine leaves and straw on the ground. Aug. 1848. Santee Canal, S. C. Ravenel (788)."

Berkeley (Grevillea, **2**: 52, 1873) referred this specimen to "*Angioridium valvatum* Fr.," a combination which apparently never existed. What Fries wrote (Index Syst. Myc., p. 51) was "*Angioridium sinuosum* Gr. (*Diderm. valvat.*? *Phys. sin.*?)." Berkeley (*l. c.*) also wrote "*Diderma pallidum* B. & C." in connection with this specimen, but since he added no description, both names are *nomina nuda,* and *Physarum bogoriense* Racib. takes precedence. Moreover, the specimen numbered 1972 in the Berkeley herbarium differs essentially from the common *Angioridium sinuosum* of Greville, according to Miss Lister (Monog., Ed. 2, p. 78). The scanty remains of the corresponding specimen in the Curtis herbarium throw no further light on the subject except in so far as the pale violet-brown, almost smooth spores, measuring 9–10 μ diam., differ from those of *P. sinuosum.*

"PHYSARUM DECIPIENS B. & C. (1333) ad Trunc. Querc. viv. Aug: Sept. Society Hill; S. C."

This is a comparatively fine specimen consisting of a number of globose or elongated sporangia, 0.5 mm. in diam., sessile, rugose, reddish-orange; capillitium of yellow branching lime-knots with no connecting threads; spores free, pale umber, minutely spinulose, 13–15 μ diam. It is, of course, *Badhamia decipiens* (Curt.) Berk.

"BADHAMIA PAPAVERACEA CORT: Quercus. Aiken, S. C. Ravenel (1768)."

This specimen is a co-type and, though somewhat scanty, shows admirably the characters distinguishing it from *B. capsulifera,* i. e., the short, stout, brown stalks on which the sporangia are borne either singly or in pairs, and the spore-clusters consisting of only about 8 or 9 spores.

"(3578) TRICAMPHORA OBLONGA B. & C. Penn^a 1851. Dr. Michener (407)."

This is a fine co-type, consisting of about eight sporangia, well preserved and perfectly characteristic.

"OPHIOTHECA PALLIDA B. & C. Fung. Cub. 544. (413) Herbis mucidis. July, Hillsborough, N. C."

The label bears this name written in pencil, in Curtis' handwriting, over the name *Trichia serpula* Pers. Berkeley twice refers to this specimen (413), and each time as the type of a separate species, first under *Ophiotheca pallida* (Journ. Linn. Soc. **10**: 350, 1868), and again under *O. umbrina* (Grevillea **2**: 68, 1873). It is a well-preserved and perfectly characteristic specimen of *Perichaena vermicularis* (Schw.) Rost.

"B. & C. Fung. Cub. 544 OPHIOTHECA WRIGHTII B. & C. dead wood, Cuba, C. Wright (673)."

This is a fine specimen of *Perichaena chrysosperma* (Curr.) List.

"(2991) CRATERIUM MINIMUM B. & C. in quisquiliis. Aug. 1850. Santee Canal, S. C. Ravenel (1055)."

Miss Lister (Monog., Ed. 2, p. 96) refers this to "var. *cylindricum*" of *Craterium leucocephalum* (Pers.) Ditm. Macbride considers it a distinct species. The designation "cylyndricum (Mass.)" being the first to be applied to this form as a variety, remains valid; but Macbride, regarding the form as of specific rank, rightly retains the original specific name, "*minimum* B. & C." A careful examination of the specimen under consideration reveals no points of difference between it and typical *C. leucocephalum,* except the smaller and somewhat more cylindrical sporangia of the former. I should hardly regard these differences as more than varietal.

"CRATERIUM PORPHYRIUM Schw., Herb. Schw."

Of this specimen there remain only traces of a dark purple-red hypothallus; a reddish capillitium marked with indistinct spirals, minutely spinulose and with many free, pointed ends; and pale reddish spores. It is unquestionably *Hemitrichia Vesparium* (Batsch) Macbr.

"STEMONITIS DIGITATA Schw. Herb. Schw."

Except for the fasciculate habit, there is nothing to distinguish this specimen from *Arcyria cinerea* (Bull.) Pers.

"STEMONITIS MAXIMA Schw. Herb. Schw."

The marked difference of opinion between the leading students of Myxomycetes as to the characteristic features of *Stemonitis fusca* Roth are due, of course, to the loss of that specific type. Rostafinski describes what he considers as Roth's species and states that the spores are smooth. Macbride accepts this *dictum*, and therefore applies the name *S. fusca* (Roth) Rost. to fuscous forms having smooth or slightly warted spores. To similar forms having reticulated spores he applies the name *S. maxima* Schw. Lister, however, after examining the specimens established by Rostafinski as *S. fusca* Roth, pronounces the spores to be not smooth, as stated by Rostfinski, but delicately reticulated. It seems difficult, therefore, to escape the conclusion that forms showing reticulated spores should be placed in the "*fusca*" group. It is here that *S. maxima* Schw. belongs. The specimen in Herb. Curtis consists of a few crushed and weathered sporangia about 10 mm. in height; surface net reddish, small-meshed, meshes angular, 6–15 μ diam.; spores pale smoky brown, closely and faintly reticulate, 7 μ diam.

"(1967) STEMONITIS PORPHYRA B. & C. ad lign. muscos. Pini. Maio 1849. Santee Canal, S. C. Ravenel (744)."

Miss Lister (Monog., Ed. 2, p. 165) refers this species doubtfully to *Lamproderma columbinum* (Pers.) Rost., for which reference the original description (Grevillea **2**: 69, 1873) certainly gives some grounds. The specimen, however, is a very different thing. Though in poor condition, it shows a number of brittle, calcareous, purple stalks, 0.9 mm. long and 0.08–0.09 mm. thick, and a capillitium of the "*globuliferum*" type, but with small reddish purple lime-knots; the spores are very pale reddish, smooth, and measure 7.8 μ diam. This is evidently *Physarum* *pulcherrimum* B. & R. Unfortunately the original description quotes no herbarium-number, so that it is impossible to determine what specimen is the type. Berkeley merely writes (*l. c.*) "on pine wood"; Curtis' MS. list says, under No. 1967, "lign: putr. Pini"; the Curtis specimen is on coniferous wood. Through the kindness of Miss A. L. Smith, of the British Museum, I am assured that of four Ravenel specimens in the Museum herbarium, all numbered 744, three were originally labelled *Stemonitis porphyra* B. & C., which name is crossed out and *Physarum pulcherrimum* B. & R. substituted, while the fourth bears only the latter name. Ravenel's No. 77 in Fung. Car. Exsicc., Fasc. II, is labelled *Physarum pulcherrimum* B. & R.; the index to the same fascicle gives *Stemonitis porphyra* B. & R., over which is pasted a label bearing the same name as the specimen. From these facts there would seem to be little doubt but that "*Stemonitis porphyra* B. & C." is *Physarum pulcherrimum* B. & R., and that one of these Ravenel specimens served Berkeley as a type notwithstanding the fact that the authority for the former name is given as "*B. & C.*" and not "*B. & R.*"

"STEMONITIS TENERRIMA M. A. C. (1343) Ad Herb: corrump. Sept. Society Hill, S. C."

From this very scanty specimen a single sporangium is narrowly cylindrical and tapering in shape, 1.7 mm. high; stalk, 0.4 mm. long; spores pale brownish, very minutely punctate, 5.8–7.2 μ diam. It is *Comatricha pulchella* (Ch. Bab.) Rost.

"STEMONITIS TRECHISPORA B. & C. Venezuela. Coll. Fendler."

I recently took occasion[3] to state my reasons for accepting, as applied to this specimen, Rostafinski's designation, "*dictyospora,*" whether the form were of specific or merely varietal rank. Since that time, however, Miss Lister has kindly called my attention to the fact that this is a case similar to those cited above (*Didymium columbinum* and *D. megalosporum*), in which Article 49 of the Vienna Rules is applicable. Lister first reduced the banded-spored forms to varietal rank under *S. fusca* Roth, and applied to them the name "*trechispora.*" That name, therefore, is to be accepted as the proper varietal designation. In case, however, these banded-spored forms are considered as of specific rank, they should bear the name *Stemonitis dictyspora* Rost. The specimen before us represents the extreme limit of departure from typical *Stemonitis fusca,* the sooty-black sporangia showing hardly a trace of any surface net and the large, dark spores, measuring 11.5–13.5 µ diam. and being marked with a network of raised bands, which form a distinct border to the spore when seen in profile.

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[3] MYCOLOGIA **8**: 38. 1916.

"(2992) CRIBRARIA ELEGANS B. & C. ad. lign. putr. Aug: 1855. Santee Canal, S. C. Ravenel (1044)."

This specimen agrees perfectly with the published descriptions of the species.

"(2717) CRIBRARIA MINIMA B. & C. Pine boards after rain. Julio 1849. Society Hill, S. C."

The label reads "*Cribraria microscopica,*" but the number is the one referred to in Grevillea **2**: 67 as the basis for the description of *C. minima.* The specimen is typical *C. minutissima* Schw., though very scanty.

"(1182) CRIBRARIA MICROSCOPICA B. & C. Underside of old shingles and on old rails of pine. July 1847. Society Hill, S. C. Yellow."

This specimen is in even worse condition than the preceding. The most diligent search fails to reveal a single sporangium. The published description applies to *C. minutissima.*

"ARCYRIA BICOLOR B. & C. ad ram: deject: Cuba. C. Wright. B. & C. Fung: Cub: 542."

This is in poor condition, but is distinctly referable to the "*digitata*" form of *Arcyria cinerea.*

"ARCYRIA GLOBOSA Schw. Herb. Schw."

Though a very scanty specimen, enough remains to show the distinctive features of the species.

"ARCYRIA MINOR Schw. Herb. Schw."

Miss Lister (Monog., Ed. 2, p. 242) refers this doubtfully to *Arcyria incarnata* Pers. The specimen before us shows a capillitium free from the cup, and marked with a very open spiral of blunt ridges—characters which appear to confirm Miss Lister's opinion.

"ARCYRIA PALLIDA B. & C. ad lign: putridum. Aug. 1848. Society Hill, S. C."

This is undoubtedly *A. cinerea* (Bull.) Pers., though of a yellower color than usual.

"CRATERIUM FLORIFORME Schw. Herb. Schw."

Berkeley (Grevillea **2**: 67) writes "*C. floriforme* Schwein. is a *Trichia*." Miss Lister includes it under *Hemitrichia Vesparium*, though doubtfully. The free, rarely branching, dark red elaters terminating in a long point, the solid stalk, and the orange spores 11 μ diam., place it distinctly under *Trichia Botrytis* Pers. var. *lateritia* (Lév.) List.

"LICEA ARTOCREAS B. & R. Cort: Juniperi. Martio 1850. Ravenel (1459)."

This name is attached to the specimen No. 82 in Ravenel's Fung. Car. Exsicc., Fasc. II, but the combination was never published. When Berkeley described the species, he placed it under the genus *Perichaena*, where it belongs (Grevillea **2**: 68, 1873). It is typical *P. depressa* Lib. Berkeley's description of the spores as "fusiform" is due to the fact that they are shrunken. Proper treatment readily restores them to their normal form.

"PERICHAENA IRREGULARIS B. & C. subter ram. dej. putrid. Jan. 1848. Society Hill, S. C. (2478)."

This again is typical *P. depressa* Lib.

"(6081) LICEA APPLANATA B. subter ram. Querc. alba. 1856. Ala. superiore. Peters (1009)."

Two descriptions of this species were published by Berkeley, the second of which (Grevillea **2**: 68, 1873) cites this specimen. It is normal *Dictydiaethalium plumbeum* (Schum.) Rost., except that the corner-strands measure nearly 7 μ diam. and are greatly thickened along the outer edge. This causes the strands to coil up like a spring when detached. A similar feature characterizes a specimen collected by Professor Roland Thaxter in Chile.

"LICEA MACROSPORA Schw. in peponibus putridis. Herb. Schw."

An examination of this specimen confirms Miss Lister's reference of the species to *Didymium difforme* (Pers.) Duby.

"LICEA MICROSPERMA B. & C. (4695) in trunc. cavo. Aug. 1853. Nova Cesarea: Laning (56)."

Through a clerical error the label reads "*microscopica*." Miss Lister refers the species to *Tubifera ferruginosa* (Batsch) Gmel., but the stipitate habit and the smaller spores (4.3–4.7 μ diam.) bring it plainly under *T. stipitata* (B. & R.) Macbr.

"LICEA RUBIFORMIS Berk. & Curt. Japan U. S. Pac. Ex. Ex. (315)."

This is a poorly developed specimen of *Tubifera ferruginosa* (Batsch) Gmel.

"LICEA SPERMOIDES B. & C. (4867) ad fol. deject. putresc. Alabama: Beaumont (349)."

This specimen is certainly referable to var. *simplex* of *Lindbladia effusa* (Ehr.) Rost. rather than to *Cribraria argillacea* Pers. (cf. Lister, Monog., Ed. 2, p. 175).

"LICEA STIPITATA B. & R."

The herbarium contains three specimens under this name, labelled respectively:

I. "Rotten logs. Oct. 1854. Bonin. U. S. Pac. Ex. Ex. (314)."

II. "Ad lign. cariosum. Cuba. C. Wright (678). B. & C. Fung: Cub. 551."

III. "Autumno. Santee Canal. H. W. Ravenel (1305)."

These specimens correspond respectively with three published descriptions, i. e.:

I. Berkeley & Curtis, Proc. Am. Acad. Arts & Sc., **4**: 125, 1858.

II. Berkeley, Journ. Linn. Soc., **10**: 350, 1868.

III. Berkeley, Grevillea, **2**: 68, 1873.

The Cuban specimen is so crushed as not to show the true habit, but the others are typical in this respect and all are characterized by small spores (4.7–5 μ diam.).

"OSTRACODERMA SPADICEUM Schw. ram. dej. Mori albae. Herb. Schw."

This name appears to have been overlooked by the monographers. It was published in Syn. Fung. Am. Bor., p. 262, 1831. The specimen is normal *Dictydiaethalium plumbeum* (Schum.) Rost.

From the above notes it will be seen that my observations are, in most cases, merely corrobrative of those recorded by the Listers. The few instances in which I have been obliged to dissent from their opinion or in which further study has resulted in changes in the hitherto accepted synonomy, are as follows:

Didymium columbinum B. & C.
Tilmadoche columbina Rost. } = *Physarum columbinum* (Rost.) Sturgis. Syn. *P. compactum* (Wing.) List.

Didymium megalosporum B. & C. (*ut. var.*) = *Didymium nigripes* (Lk.) Fr. var. *eximium* (Pk.) List.
Didymium terrigenum B. & C. = *Physarum virescens* Ditm.
Lachnobolus cinereus Schw. = *Fuligo cinerea* (Schw.) Morg.
Craterium minimum B. & C. (*ut. var.*) = *Craterium leucocephalum* (Pers.) Ditm. var. *cylindricum* (Mass.) List.
Stemonitis porphyra B. & C. = *Physarum pulcherrimum* B. & R.
Craterium floriforme Schw. = *Trichia Botrytis* Pers. var. *lateritia* (Lév.) List.
Stemonitis trechispora B. & C. (*ut. sp.*) = *Stemonitis dictyospora* Rost.
Stemonitis trechispora B. & C. (*ut. var.*) = *Stemonitis fusca* Roth. var. *trechispora* (B. & C.) List.
Licea microsperma B. & C. = *Tubifera stipitata* (B. & R.) Macbr.
Ostracoderma spadiceum Schw. = *Dictydiaethalium plumbeum* (Schum.) Rost.

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